Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (Currently Amended) A computer-implemented method of processing a three-dimensional model of an object, the model comprising a plurality of model components, and the method comprising:

constructing a data structure identifying different positional arrangements of the model components to represent different positions of movable ones of the model components; ~~and~~

based on the data structure identifying the different positional arrangements, automatically generating an image of the model depicting a change in a position of a first one of the model components with respect to a second one of the model components~~.~~;

generating an annotation showing dimension between a first entity in the first position and the first entity in the second position; and

wherein:

generating the image comprises traversing a model hierarchy to render the image of the model, the model hierarchy comprising the interrelationship of the plurality of model components, and the image depicting the object having the model components in a first and in a second positional arrangement;

the model hierarchy further comprises data representing different positional arrangements as defined during a model design process;

traversing the model hierarchy to render the image comprises rendering the image based on the data representing the different positional arrangements; and

generating the image further comprises:

depicting a first component in both a first and a second position; and

rendering the image in a view area.

2. (CANCEL)

3. (CANCEL)

4. (CANCEL)

5. (CANCEL)

6. (Twice Amended) The method of claim [[~~5~~]]1, further comprising:
altering the model of the object;
updating the annotation to correspond to the model of the object as altered; and
rendering an updated annotation value and an updated annotation line.

7. (Currently Amended) The method of claim [[4]]1, wherein different display attributes are applied to depict the first component in the first position than are applied to depict the first component in the second position.

8. (original) The method of claim 7, wherein the display attributes comprise attributes selected from the group consisting of color, line weight, and line pattern.

9. (Currently Amended) The method of claim [[4]]1, wherein a solid line font depicts the first component in the first position and a phantom line font depicts the first component in the second position.

10. (Currently Amended) A computer-implemented method of processing data representing a three-dimensional object model, the method comprising:

traversing a model hierarchy to render a first view of a model, the model hierarchy comprising an interrelationship of a plurality of model components, the plurality of model components having a first positional arrangement with respect to each other, and the first view depicting the first positional arrangement of the plurality of model components;

traversing a positionally altered version of the model hierarchy to render a second view of the model, the positionally altered version comprising the plurality of model components in a second positional arrangement with respect to each other, the second positional arrangement differing from the first positional arrangement, and the second view depicting the second positional arrangement of the plurality of model components; [[~~and~~]]

combining the first view and the second view to display a composite image of the model, the composite image simultaneously representing both the first and the second positional arrangements[[~~.~~]]; and

wherein:

the model hierarchy comprises a first position indicating data structure detailing a first position of a first one of the model components with respect to other ones of the model components and a second position indicating data structure specifying a different position of the first one of the model components with respect to the other ones of the model components;

traversing to render the first view comprises rendering the first model component to depict the first model component in a position specified by the first position indicating data structure; and

traversing to render the second view comprises rendering the first model component to depict the first model component in a position specified by the second position indicating data structure.

11. (Cancel)

12. (original) The method of claim 10, wherein:

the first and the second positional arrangements each comprise a same first subset of model components that have a same layout in both the first and second positional arrangements; and

the first and the second positional arrangements each comprise a second subset of model components that have a first layout in the first positional arrangement that differs from a second layout in the second positional arrangement.

13. (original) The method of claim 12, wherein:

the composite image comprises a single representation of the first subset of model components and a first and second representations of the second subset of model components, the first representation distinguishing the first positional arrangement of the second subset and the second representation distinguishing the second positional arrangement of the second subset.

14. (Previously Amended) The method of claim 12, wherein differing display attributes distinguish change in positional arrangement of the second subset of model components.

15. (Previously Amended) The method of claim 14, wherein display attributes comprise line style attributes selected from a group consisting of color, line weight, and line pattern.

16. (Currently Amended) ~~The method of claim 10, further comprising:~~A computer-implemented method of processing data representing a three-dimensional object model, the method comprising:

traversing a model hierarchy to render a first view of a model, the model hierarchy comprising an interrelationship of a plurality of model components, the plurality of model components having a first positional arrangement with respect to each other, and the first view depicting the first positional arrangement of the plurality of model components;

traversing a positionally altered version of the model hierarchy to render a second view of the model, the positionally altered version comprising the plurality of model components in a second positional arrangement with respect to each other, the second positional arrangement differing from the first positional arrangement, and the second view depicting the second positional arrangement of the plurality of model components;

combining the first view and the second view to display a composite image of the model, the composite image simultaneously representing both the first and the second positional arrangements;

storing a dimension datum in the model hierarchy, the dimension datum referring to a first view entity and a second view entity;

processing the dimension datum, the processing comprising calculating a mapping of the first view entity and the second view entity to a common coordinate space; and

rendering a dimension value and a dimension line in the composite image.

17. (original) The method of claim 16, further comprising:

updating the dimension datum after altering one of the model components; and

rendering an updated dimension value and an updated dimension line.

18. (original) The method of claim 17, wherein the dimension datum behaves parametrically.

19. (original) The method of claim 10, wherein the positionally altered version of the model hierarchy is generated during preparation of a formal drawing of the model.

20. (original) The method of claim 19, wherein preparation of a formal drawing comprises:
a computer-aided design drafting process transferring control from a two-dimensional computer-aided design module to a three-dimensional computer-aided design module;
the three-dimensional computer-aided design module displaying a software modeling tool, the modeling tool capable of initiating the creation of the second positional arrangement;
the creation of the second positional arrangement comprising:
creating a data structure to define the second positional arrangement; and
storing a three-dimensional transformation in the data structure;
the computer-aided design drafting process transferring control from the three-dimensional computer-aided design module to the two-dimensional computer-aided design module after the creation of the second positional arrangement completes; and
the computer-aided design drafting process projecting the second positional arrangement in a two-dimensional drafting window.

21. (Previously Amended) The method of claim 20, wherein:
the three-dimensional transformation is applied to the model during the computer-aided design drafting process to produce the second positional arrangement; and
the second positional arrangement appears in the two-dimensional drafting window as the three-dimensional transformation is being applied.

22. (original) The method of claim 20, wherein the two-dimensional computer-aided design module and the three-dimensional computer-aided design module comprise parametric operations.

23. (CANCEL)

24. (CANCEL)

25. (CANCEL)

26. (CANCEL)

27. (CANCEL)

28. (CANCEL)

29. (CANCEL)

30. (Previously Amended) A computing system for processing data representing construction of a three-dimensional object, the system comprising:

a model data storage system comprising stored model data representing construction of a three-dimensional object from a plurality of modeled components;

a computer processor coupled to the model data storage system, a program storage system, and an output display system, the program storage system comprising instructions to configure the processor to:

retrieve the stored model data from the model data storage system;

render a first view of the three-dimensional object in which the plurality of modeled components are in a first positional arrangement;

render a second view of the three-dimensional object in which the plurality of modeled components are in a second positional arrangement that is different from the first positional arrangement;[[~~and~~]]

automatically display an overlaid view of the first and the second views on the output display system, the overlaid view distinguishing a change between the first and the second positional arrangements of the modeled components; and

wherein:

the plurality of modeled components comprise a first and a second modeled component having a different positional arrangement with respect to each other in the first and second views; and

the instructions to display the overlaid view comprise instructions to display the first modeled component at a common position on the output display and to display the second modeled component at different positions on the output display to distinguish change in positional arrangement of the second model component with respect to the first modeled component; and

the program storage system further comprises instructions to configure the computer processor to calculate a dimension between a first entity in the first view and the first entity or a second entity in the second view.

31. (original) The computing system of claim 30, wherein the stored model data represents construction of the three-dimensional object based on a hierarchical relationship between the plurality of modeled components.

32. (Previously Amended) The computing system of claim 31, wherein:

the instructions to render the first and the second views comprise instructions to render in accordance with the hierarchical relationship.

33. (Cancel)

34. (Cancel)

35. (Currently Amended) ~~The computing system of claim 30, wherein the program storage system further comprises instructions to:~~ A computing system for processing data representing construction of a three-dimensional object, the system comprising:

a model data storage system comprising stored model data representing construction of a three-dimensional object from a plurality of modeled components;

a computer processor coupled to the model data storage system, a program storage system, and an output display system, the program storage system comprising instructions to configure the processor to:

retrieve the stored model data from the model data storage system;

render a first view of the three-dimensional object in which the plurality of modeled components are in a first positional arrangement;

render a second view of the three-dimensional object in which the plurality of modeled components are in a second positional arrangement that is different from the first positional arrangement; and

automatically display an overlaid view of the first and the second views on the output display system, the overlaid view distinguishing a change between the first and the second positional arrangements of the modeled components;

configure the computer processor to modify the stored model data; and

update the stored model data.

36. (Previously Amended) The computing system of claim 30, wherein the output display system comprises a system selected from the group consisting of a video display, a plotter, and a printer.

37. (Currently Amended) A data storage apparatus comprising instructions to configure a computer to:

traverse a model hierarchy to render a first view of a model, the model hierarchy comprising an interrelationship of a plurality of model components, the plurality of model components having a first positional arrangement with respect to each other, and the first view depicting the first positional arrangement of the plurality of model components;

traverse a positionally altered version of the model hierarchy to render a second view of the model, the positionally altered version comprising the plurality of model components in a second positional arrangement with respect to each other, the second positional arrangement differing from the first positional arrangement, and the second view depicting the second positional arrangement of the plurality of model components;[[~~and~~]]

combine the first view and the second view to display a composite image of the model, the composite image simultaneously representing both the first and the second positional arrangements.; and

wherein:

the model hierarchy comprises a first position indicating data structure detailing a first position of a first one of the model components with respect to other ones of the model components and a second position indicating data structure specifying a different position of the first one of the model components with respect to the other ones of the model components;

traversing to render the first view comprises rendering the first model component to depict the first model component in a position specified by the first position indicating data structure; and

traversing to render the second view comprises rendering the first model component to depict the first model component in a position specified by the second position indicating data structure.

38. (original) The apparatus of claim 37, wherein:

the first and the second positional arrangements each comprise a same first subset of model components that have a same layout in both the first and second positional arrangements; and

the first and the second positional arrangements each comprise a second subset of model components that have a first layout in the first positional arrangement that differs from a second layout in the second positional arrangement.